

Blue

Work Order ID 55780

February 1, 2010 10:11:13 AM



Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd, Blue

Stop



Start Date: 2/02/10 Start Qty: 1.00



Cust Item ID:

Required Date: 2/12/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

PL

Date:

2-02-1

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D206-667-143

C

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-103 CHG004

5 d 2/25

HF-GA LL 10/02/25

110

0.00



Packaging

Pick Kit

Packaging

Memo

0.00

Packaging

CV

S

MB 10-02-03

120

0.00



CNC Bend 2

BENDING MACHINE - CROSSTUBES

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-143 using CNC bender program

CV

S

MB 10-02-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Sequence ID/
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Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC15- Crosstube Dimensional Check

0.00

0.00

Slateboy

HC

QC

Memo

Quality Control

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NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

0.00



Crosstubes

Crosstubes

Memo

0.00

** See PAF sheet for Drill holes 5/10/2004*

1-Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143. Inside of Cuff(Donot engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

*-AWM**10-2-04*

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150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 - - - - - April 10-29

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

8/10/02/09

(H)

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8/10/02/09

(H)

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180

Outsource process - NDT per QS1038 4.1

0.00

Outsource2

Memo

0.00

Outsource process - NDT

CROSSTUBES

PO 11364 PA
10-2-16 ①

190

Packaging

0.00

Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

Rec'd 1/17 ①

200

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

MA 10 02 17 ①

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210

0.00



SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube grey as per QSI 005 4.2

2-Paint outside crosstube *Primer: 110918*Paint Delfleet Blue B *113171*Clear Delfleet B *110896*

per QSI 005 4.2

PRIME:

Start Time: *10:00*Finish Time: *11:00*

PAINT:

Start Time: *3:00*Finish Time: *4:00**MA**10**02**17**①*

220

0.00



QC

QC14- Inspect Spray Paint

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

*BT**60-02-18*

Dart Aerospace Ltd

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230  Crosstubes	Crosstubes	0.00				<i>m</i>	<i>10</i>	<i>02</i>	<i>22</i> ①
Crosstubes	Memo 1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (2) Aft holes should be facing up. A/R Magnobond 6398 : <i>110417 exp: 01/2011</i> 2-Install supports and clamps as per Dwg D206-667-143. Torque clamps to 80-100 in lb 3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.	0.00							
240  QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							<i>8 10/02/23</i> ⑦
	Memo	0.00							

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Stop

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250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

10-2-25 SP

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8 o/c/bs

10

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-667-103

Location:

PPP Rev: D

10-2-26 SP

W/O:		WORK ORDER CHANGES					
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Sequence ID/
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Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/03/03 *[Signature]**B/ 10-2-24*
(1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Comments: IIP RevA: new issue DD .09.11.23 verified by:EC

Start Date: 2/02/10

Required Date: 2/12/10

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
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D206-667-103TRN

Manufactured

No

110

Each

2.0000

1.0000



Crosstube Turning DetailL

MB 10-02-03 ✓

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

FG

2

52829

1

52830

1

D2873-043

Manufactured

No

230

Each

47.0000

2.0000



Nut Plate Assembly

14

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

47

45370

2

45422

1

50002

4

50871

20

53966

20

10/02/23

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D2873-045

Manufactured No

230

Each

65.0000

2.0000



Nut Plate Assembly

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

65

45210

3

50001

22

53967

20

53968

20

D2891-1

Manufactured No

230

Each

67.0000

2.0000



2.25 Support

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

67

40336

1

43880

18

46159

20

50952

20

53347

8

ml 10 02 23

ml 10 02 22

Blue

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D3595-063-395

Manufactured

No

230

Each

28.0000

4.0000



RUBBER CUSHION

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

28

44667

28

cut (4)0.063" X 3.95"

MS20601-AD4W8

Purchased

No

230

Each

372.0000

14.0000



RIVET

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

372

108521

200

112203

172

ml 10 02 22

ml 10 02 23

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MS21920-20		Purchased	No			230	Each	115.3000	4.0000			



Clamp (per MIL-DTL-8783C)

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST 115.3

103478 2

106484 12

109269 9.3

110536 10

112307 32

112624 39

112793 11

ml 10/02/22

AN5-30A

Purchased

No

250

Each

71.0000

4.0000



BOLT

10-2-25 SP

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST 71

110467 21

112933 50

4

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AN5-32A

Purchased

No

250

Each

172.0000

4.0000



Bolt

10-2-25 SP

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

172

106242

3

106519

4

110363

17

112933

48

113121

100

AN5-7A

Purchased

No

250

Each

174.0000

10.0000



Bolt

10-2-25 SP

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

157

110625

7

113149

100

113226

50

Main Warehouse

t

17

112829

17

AN960JD516

Purchased

No

250

Each

0.0000

18.0000



Washer

1113524 10-2-25 SP

February 1, 2010 10:11:18 AM

Shop Packet Print

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February 1, 2010 10:11:18 AM

Work Order ID: 55780

Parent Item: D206-667-103BL

Parent Item Name: Crosstube Fwd, Blue


Comments: IIP RevA: new issue DD .09.11.23 verified by:EC

Start Date: 2/02/10

Required Date: 2/12/10

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN970-4  Washer		Purchased	No			250	Each	262.0000	12.0000		10-2-25	SL

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST	262	
104885	3	
107242	3	
107715	1	
108077	2	
108377	19	
111724	3	
112082	1	
112794	9	
<u>112991</u>	221	

MS21042L5



Nut

Purchased

No

250 Each 533.0000 4.0000



10-2-25

SL

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST	533	
110382	10	
111636	1	
112314	22	
113523	300	
113537	200	

4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

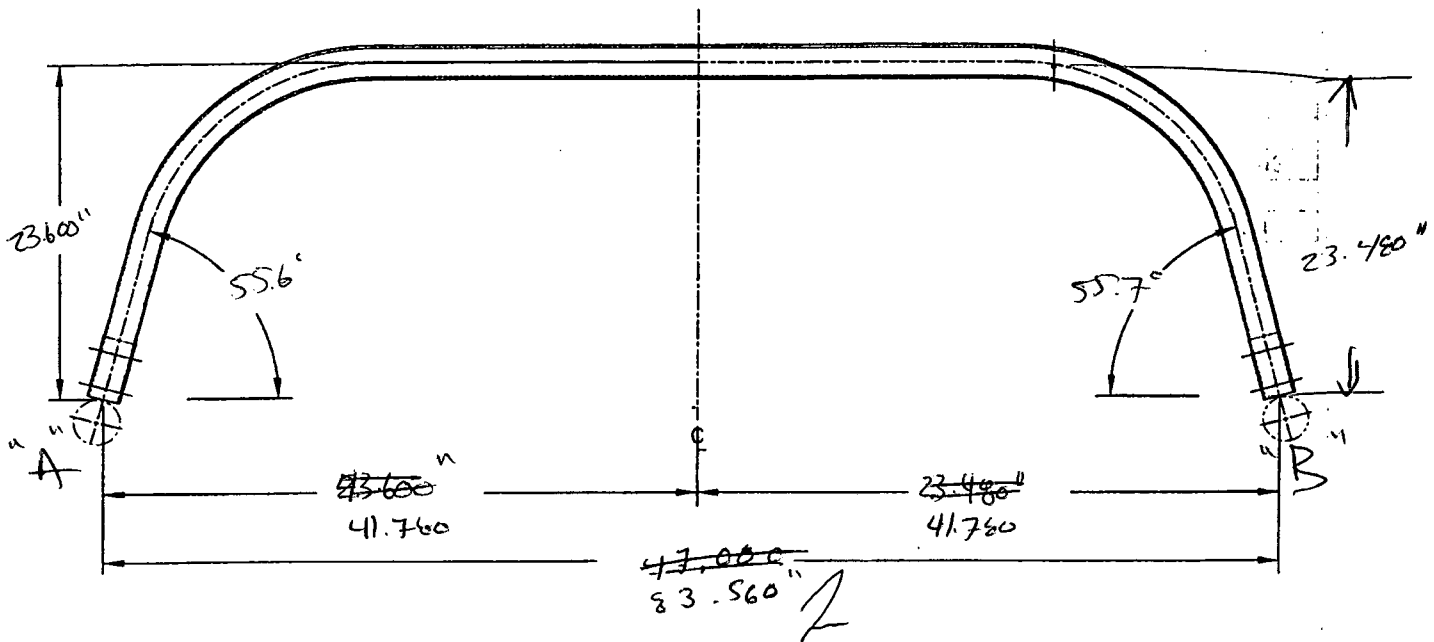
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	55780
Description: Crosstube High Fwd (206L)	Part Number:	D206-667-103
Inspection Dwg: D206-667-143 Rev: C		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10



Comments
→ Adjuster holes A match height of x tube

QC15 Inspection	8
Date	10/02/04

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

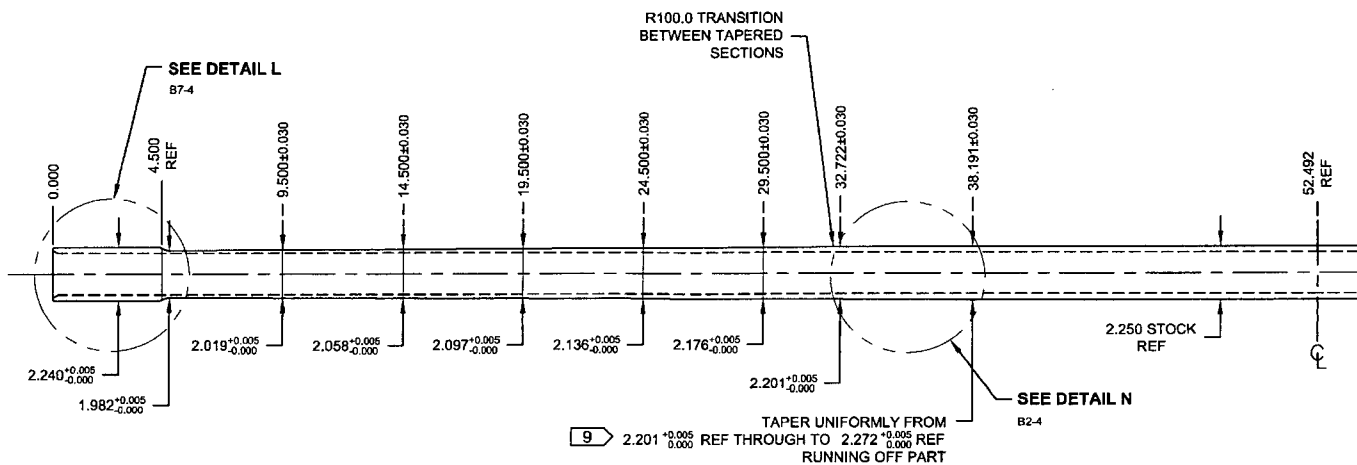
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

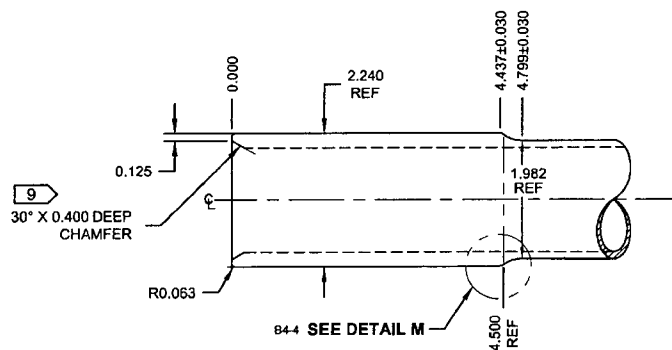
SHOP
RETURN
ENGINE
UNCONTROLLED
SUBJECT TO
WITHIN
WORK ORDER
NO. 55280
A/10-02-1

RELEASED
08/11/06

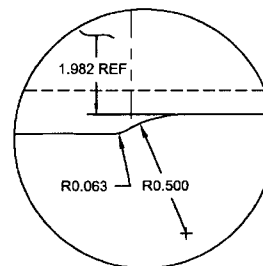
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2858-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #8 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. REV. C D206-667-143 SHEET 1 OF 4	
CHECKED	RF	TITLE SCALE CROSSTUBE ASS'Y (206L HIGH FWD) NTS	
MFG. APPR.	RF	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DE APPR.	RF	DATE 08.11.06	



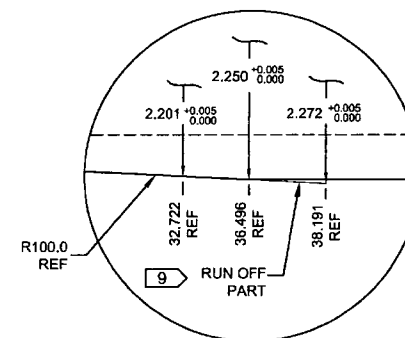
C TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
D7-4 NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
A6-4 NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
C4-4 NOT TO SCALE

RELEASED

DESIGN	W10-55780	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	JP	D206-667-143	SHEET 4 OF 4
MFG. APPR.	JP	TITLE	SCALE
APPROVED	JP	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DE APPR.	JP	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
DATE	08.11.06	THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



LIQUID PENETRANT TEST REPORT

P- 15318

PAGE 1 OF 1

IN

DATE 4 FEB 2010

DATE

FEB 11-2010TIME AM ☒ PM ☐LINDA / HARTSEL

ACUREN JOB NO.

198-10-0051177 ABENDEAL ST.

PO/VO NO.

11364WALKSBURY IN. K&H 1KT

WORK LOCATION

SHC?

ACCEPTANCE STD.

ASTM 1417REV./DATE 2007F.P.I. ON CROSS TUBES

EXAMINED

E PCS

DESCRIPTION	PROCEDURE NO. <u>LT-2002</u> REV./DATE	TECHNIQUE NO. <u>LT-2002</u> REV./DATE
MATERIAL <u>Aluminum</u> THICKNESS		
<u>WET FLUORESCENT LIQUID PENETRANT INSPECTION</u>		
<u>CARRIED OUT 100% EXTERNAL.</u>		
DETAILS		
<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH
<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED	
BRAND <u>ULASLAFLEX</u>	BLACK LIGHT S/N <u>16859</u>	<input checked="" type="checkbox"/> OUTPUT > 1000 μ W/cm ²
INT <u>2007</u>	MINIMUM DWELL TIME <u>45</u> MIN.	<input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT
INT REMOVER <u>100%</u>	MINIMUM DRY TIME <u>>10</u> MIN.	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PER <u>SKD 3-2</u>	MINIMUM DWELL TIME <u>10</u> MIN.	OTHER <u>LABING</u>
PER TYPE <input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	LIGHT METER S/N <u>1098866</u>
<input type="checkbox"/> DRY		CAL DUE DATE <u>MAY 7-2010</u>
SURFACE		
<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED
<input type="checkbox"/> SHOT BLASTED	<input type="checkbox"/> CLEAN BARE METAL	
TEMPERATURE <input type="checkbox"/> < -4°C/ 20°F	<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F
<input type="checkbox"/> > 52°C/125°F		
TS- <input type="checkbox"/> METRIC	<input type="checkbox"/> IMPERIAL	

CROSS TUBE W.C. 55759 ✓
CROSS TUBE W.C. 55760 ✓
CROSS TUBE W.C. 55779 ✓
CROSS TUBE W.C. 55780 ✓

CROSS TUBE W.C. 55781 ✓
CROSS TUBE W.C. 55782 ✓
CROSS TUBE W.C. 55134 ✓
CROSS TUBE W.C. 55135 ✓

ALL ITEMS EXAMINED ON
THIS REPORT HAVE BEEN
ACCEPTED TO STANDARD.

10 02 17

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REPRESENTATIVE <u>L. A. T. H. L. A. Y</u>	DTR # <u>E 27362</u>
CIAN (SIGNATURE): <u>[Signature]</u>	REPORT REVIEWED BY:
(PRINT): <u>Mike H. H. H. H. H.</u>	NAME INITIALS
1 ST TECHNICIAN	2 ND TECHNICIAN
CGSB LEVEL <u>2</u> SNT LEVEL <u>2</u>	CGSB LEVEL SNT LEVEL
CGSB REG. NO. <u>6606</u>	CGSB REG. NO.

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